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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,798	10/27/2003	Yukio Taniguchi	244420US2	1075
22850	7590	09/14/2005		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER ROSASCO, STEPHEN D	
			ART UNIT	PAPER NUMBER
			1756	
DATE MAILED: 09/14/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,798

Applicant(s)

TANIGUCHI ET AL.

Examiner

Stephen Rosasco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/03</u> . | 6) <input type="checkbox"/> Other: _____ |

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Detailed Action

In response to the election with traverse the examiner will withdraw the restriction requirement and examine all of the pending claims 1-44.

Claims 1, 15, 16, 27, 32, 33 and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This phrase is also used throughout the specification and is not defined in such a way that it is understood.

The phrase that the mask includes "a light absorption layer having light absorption characteristics according to the light intensity distribution with the inverse peak pattern." It is unclear in that the light absorption characteristics of the layer itself should not be related to the light intensity distribution coming from the mask with the inverse peak pattern. The destructive interference of the mask phase shift pattern, where the intensity is low is not a function of any light absorption layer.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-44 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/734248. Although the conflicting claims are not identical, they are not

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patentably distinct from each other because the cited application does not specify the substrate material as amorphous silicon in the claims but does in the specification.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoon (2002/0168577) or Hwang (2004/0076894).

The claimed invention is directed to a crystallization apparatus and a method for using said apparatus, wherein the apparatus comprises: a mask; and an illumination system which illuminates the mask with a light beam, the light beam from the illumination system becoming a light beam having a light intensity distribution with an inverse peak pattern when transmitted through the mask, and irradiating a polycrystalline semiconductor film or an amorphous semiconductor film, thereby generating a crystallized semiconductor film, the mask including a light absorption layer having light absorption characteristics according to the light intensity distribution with the inverse peak pattern.

Yoon teaches all of the claimed limitations including a method of crystallizing an amorphous silicon film, comprising; locating a substrate having an amorphous silicon film in a sequential lateral solidification (SLS) apparatus; irradiating the amorphous

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silicon film using a laser beam that passes through a mask, wherein the mask includes a light absorptive portion and a plurality of tier-shaped light-transmitting portions, wherein each light-transmitting portion has a plurality of rectangular sub-portions, wherein a width of each rectangular sub-portion is greater than one micrometer and less than ten micrometers, wherein a length of each rectangular sub-portion is greater than 200 micrometers, wherein the laser beam portion that passes through said light-transmitting portions melts the amorphous silicon film in first crystallized regions into liquid silicon, wherein each of said first crystallized regions includes a plurality of silicon sub-portions, each having a first grain region, a second grain region, and a middle section, and wherein silicon grains form in the first and second grain regions by growing laterally from an interface between liquid silicon and solid silicon; transversely moving the mask relative to the amorphous silicon film;

and performing a second crystallization on second crystallized regions such that silicon grains in the second grain regions continue to grow.

And further comprising transversely moving the mask relative to the amorphous silicon film a plurality of times so as to continue growing the silicon grains in the second grain regions until the amorphous silicon film is crystallized in the transverse direction.

And further comprising moving the mask in a longitudinal direction after the amorphous silicon film is crystallized in the transverse direction.

And further comprising conducting a second transverse directional crystallization after moving the mask in the longitudinal direction.

Hwang teaches a method of crystallizing amorphous silicon, comprising: forming an amorphous silicon layer on a substrate; placing a mask over the substrate including the amorphous silicon layer; and applying a laser beam onto the amorphous silicon

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layer through the mask to form a first crystallized region, the laser beam having an energy intensity high enough to completely melt the amorphous silicon layer, wherein the mask comprises, a base substrate, a phase shift layer on the base substrate, having a plurality of first stripes having a first width separated by slits, and a blocking layer overlapping the phase shift layer, having a plurality of second stripes having a second width narrower than the first width, the second stripes being parallel to the first stripes.

Hwang teaches a mask for crystallizing amorphous silicon, comprising: a base substrate; a phase shift layer on the base substrate, having a plurality of first stripes having a first width separated by slits; and a blocking layer overlapping the phase shift layer, having a plurality of second stripes having a second width narrower than the first width, the second stripes being parallel to the first stripes.

And wherein blocking layer is capable of reflecting a laser beam.

And wherein the blocking layer is chromium (Cr).

Conclusion

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Rosasco
Primary Examiner
Art Unit 1756

S. Rosasco
09/08/05